THU0498

CORE ENDURANCE AND POSTURAL STABILITY IMPAIRMENTS IN OSTEOPOROTIC WOMEN: A CASE-CONTROL STUDY

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Background: Crosstalk between bone and muscle has been focused, lately.¹ Any impairment in bone quality may affect core muscle endurance and whole postural control.^{2,3}

Objectives: This study aimed to compare core muscle endurance and postural stability in women with and without osteoporosis.

Methods: Women with (n: 40, age: 59.16±6.83 years, body mass index (BMI): 31.46±5.44 kg/m²) and without osteoporosis (Controls, n: 36, age: 56.10±7.17 years, BMI: 33.81±5.32 kg/m²) were recruited. Core endurance was assessed with McGill's trunk muscle endurance tests in seconds.⁴ Postural stability were evaluated with Biodex Balance System SD in static-dynamic, eyes-open and closed conditions. Independent sample *t* and Mann Whitney U tests were used for analysis.

Results: The ages and BMI of the groups were similar (*p*>0.05). The following scores were found respectively in osteoporotic women and controls: the endurance of trunk flexor [15.0 (20.0)/17.5 (15.2) s]; back extensor [9.0 (16.0)/12.5 (22.2) s], right lateral [0.0 (7.0)/6.5 (20.0) s] and left lateral muscles [0.0 (8.0)/5.0 (20.0) s], static eyes-open [1.93±0.80/1.44±0.86] and eyes-closed [2.46±1.71/1.68±0.73], dynamic eyes-open [3.08±1.95/2.86±1.39] and eyes-closed [6.31±2.31/5.40±1.24] postural stability. Lateral trunk muscle endurance decreased, static and dynamic eyes-closed instability increased in women with osteoporosis in comparison to women without osteoporosis (*p*<0.05). No differences were found in trunk flexor and back extensor muscle endurance, and static and dynamic eyes open stability scores (*p*>0.05).

Conclusions: Lateral core muscle endurance and static and dynamic eyes-closed postural stability impairments were observed in osteoporotic women. It might be appropriate to be aware of these deficits for prevention programs.

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THU0499

THE EFFECT OF CONCOMITANT TYPE OF VITAMIN D, BIOLOGICAL DMARDS AND DISEASE ACTIVITY FOR THERAPEUTIC EFFECT OF DENOSUMAB IN OSTEOPOROTIC PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: Osteoporosis is one of the major comorbidity in patients with rheumatoid arthritis (RA). There are a lot of evidence that denosumab increase bone mineral density (BMD) in patients with osteoporosis. However, there are few reports investigated the influence of denosumab in patients with RA.

Objectives: We evaluated the BMD change in patients with RA treated denosumab and assessed the effect of various factors, such as the type of vitamin D, biological disease-modifying anti-rheumatic drugs (bDMARDs) use, and disease activity.

Methods: This study included 100 RA patients (96 female, mean age 69.9±9.3 years) treated with denosumab. BMD at the lumbar spine and proximal femoral were evaluated by dual energy X-ray absorptiometry (DXA) at baseline and

1 year after treatment. We evaluated the influence of the type of vitamin D, bDMARDs and disease activity for BMD change.

Results: In all patients, BMD at the lumbar spine, proximal femoral and femoral neck were significantly increased in one years (6.2%: *p*<0.01, 4.0%: *p*<0.01, 2.2%: *p*=0.04, respectively). There were no significant differences in improvement ratio of BMD between 10 patients taking active form vitamin D and 71 patients taking native form vitamin D (7.7 vs 4.4%: *p*=0.55, 4.3 vs 4.0%: *p*=0.83, 1.4 vs 4.2%: *p*=0.52), between 30 patients treated with bDMARDs and 57 patients treated without bDMARDs (6.4 vs 6.2%: *p*=0.3, 2.7 vs 4.5%: *p*=0.95, 1.1 vs 2.5%: *p*=0.2), between 61 patients in remission or low disease activity and 26 patients in moderate or high disease activity (7.2 vs 4.0%: *p*=0.25, 3.3 vs 5.0%: *p*=0.87, 1.6 vs 3.8%: *p*=0.98) (figure 1).

Figure 1. BMD change

Conclusions: Denosumab improved BMD in patients with RA independently regardless of the type of vitamin D, bDMARDs use, disease activity.

Disclosure of Interest: None declared

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THU0500

EFFECTS OF LONG-TERM USE OF UNFRACTIONATED HEPARIN (UFH) OR LOW-MOLECULAR-WEIGHT HEPARIN (LMWH) ON BONE MINERAL DENSITY (BMD) IN PATIENTS WITH NEPHROTIC SYNDROME

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Background: Osteoporosis is a systemic skeletal disease characterised by decreased bone mass and micro- and macroarchitectural tissue alterations, resulting in bone fragility and increased fracture risk. Generalised osteoporosis is a result of different causes and pathogenic mechanisms, which often combine forces to become clinically relevant. Among the different exogenous factors, several drugs have been associated with increased risk of osteoporosis, when used chronically.

Objectives: The aim of this study is to determine the effects of UFH or LMWH therapy of at least 1 year duration on bone mineral density BMD in patients with nephrotic syndrome (NS).

Methods: All patients undergoing native renal biopsy for NS between 2006 and 2017 yielding a diagnosis of primary glomerulonephritis were identified. Baseline serum albumin, proteinuria, estimated glomerular filtration rate, date of biopsy and histological diagnosis were recorded. 465 (238 male, 227 female) patients with nephrotic syndrome received the prophylactic anticoagulation regimen were included. Mean age at biopsy was 43.8±19.2 years. Median follow-up was 5.3±2.4 years. In addition to the prophylactic anticoagulation regimen, patients received treatment for their underlying glomerulopathy. This included optimising blood pressure control, renin-angiotensin system blockade, and prescribing immunosuppressive therapy if indicated. Patients received corticosteroid treatment or with renal failure were excluded from the study. 312 patients (67.1%) received treatment with UFH and 153 - with LMWH at some point in the course of their disease. There was no difference in mean age, sex, or disease duration between both groups. 276 patients were switched from UFH or LMWH to acenocoumarol as a result of protracted hypoalbuminemia (serum albumin <2.0 g/dl) at a median time of 24.3±9.3 weeks' treatment. The anticoagulant control achieved in these patients was good. Bone mineral density (BMD) was measured at the lumbar spine and total hip region with dual x-ray absorptiometry.

Results: Results of Poisson regression analysis showed that LMWH therapy was associated with a lower risk of osteoporosis compared with UFH (0.7 vs 1.1 per 100 person-years). No statistically significant increase in the risk of fractures at 12 months was found for patients (RR = 1, 03; 95% CI: 0.27-3.34). UFH for 24

months decreased mean BMD by 2.6–3.5% (depending on the BMD site) compared to mean BMD decreases of 1.9–2.9% with LMWH. BMD of the spine and hip is significantly lower in patients with LMWH therapy than in subjects with UFH therapy, which is independent of age, sex, menopause, low BMI and altered body composition.

Conclusions: LMWH most likely have less effect on bone turnover when compared to UFH. LMWH for 6 months may not increase the risk of osteoporosis, but longer exposure for up to 24 months may adversely affect BMD. Clinicians should consider monitoring BMD in adults on long-term heparin therapy who are at increased risk of bone loss or fracture.

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THU0501 WHAT DOES TRABECULAR BONE SCORE CONTRIBUTE TO A FRACTURE LIAISON SERVICE?

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Background: The utility of the trabecular bone score (TBS) is controversial.

Objectives: To analyse the clinical usefulness of FRAX-TBS in patients with fragility fracture seen in a Fracture Liaison Service (FLS) compared to FRAX without TBS.

Methods: Consecutive outpatients >50 y seen in our FLS were included, excluding patients admitted with hip fracture. The variables included were: age, sex, type of fracture, risk factors for FRAX, FRAX for major and hip fractures with and without TBS, bone densitometry (DXA) and indication of treatment to prevent new fractures.

Results: We included 251 patients, mean age 69 y, 86% women. The most frequent type of fracture was the forearm (n=122) followed by the humerus (n=64). The DXA scan results (taking the lowest value of column/hip) was osteoporosis in 41%. The average TBS was 1.307 (SD 0.103, range 0.961–1.550): forearm fracture 1.313 (SD 0.102), vertebra 1.281 (SD 0.131) and hip 1.291 (SD 0.103). 32% presented normal TBS result 53% partially degraded and 15% degraded (table 1). The results of FRAX with and without TBS were similar, with an average for major/hip fracture of 10.7/4.2 with DXA and 10.6/4.0 with TBS respectively (p>0.05). A high risk of hip fracture (FRAX ≥3) was observed in 43% of patients using FRAX-DXA and 41% using FRAX-TBS. As a high risk of major fracture (FRAX ≥10) in 40% of patients using FRAX-DXA and 41% using FRAX-TBS. In 241 cases (96%) there was concordance in level of risk for FRAX-DXA and FRAX-TBS, while the 10 discordant cases for high risk of fracture were distributed as follows: in 6 cases FRAX-DXA was high and FRAX-TBS was normal, and in 4 cases FRAX-DXA was normal and FRAX-TBS was elevated. In our FLS, a bisphosphonate was prescribed to 169 patients (67%). Regarding patients with a low FRAX risk (n=82), in one patient FRAX-TBS was in favour of treatment. Thus, in 1/251 fractures FRAX-TBS could have influenced the treatment indication compared to FRAX-DXA.

	TBS≥1.350 Normal	TBS<1.350 y≥1.200 partially degraded	TBS<1.200 Degraded
Number of patients	80	134	37
Age, mean (SD)	67 (11)	70 (10)	71 (10)
Sex, women, n (%)	65 (81)	124 (92)	33 (92)
Risk factors, n (%)			
BMI, mean	27	29	31
Previous fracture	8 (10)	34 (25)	7 (19)
Parent's hip fracture	8 (10)	21 ⁽¹⁶⁾	2 (5)
Glucocorticoids	6 (8)	5 (4)	5 (13)
Smoking	9 (11)	20 (15)	6 (16)
Alcohol	2 (3)	4 (3)	1 (3)
Rheumatoid arthritis	3 (4)	2 (1)	0
Secondary osteoporosis	13 (16)	22 (18)	10 (28)
Bone Densitometry, n (%)			
Normal	24 (30)	7 (5)	3 (8)
Osteopenia	37 (46)	65 (49)	12 (32)
Osteoporosis	19 (24)	62 (46)	22 (60)

Conclusions: In our FLS unit, TBS does not help to classify patients' risk. The values of FRAX-TBS are similar to those of FRAX-DXA, not offering advantages when classifying patients with high risk who are candidates for treatment.

Disclosure of Interest: None declared

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THU0502 ASSESSMENT OF SEVERITY OF ATHEROSCLEROTIC LESIONS OF CAROTID ARTERIES IN MEN WITH CORONARY HEART DISEASE DEPENDING ON BONE MINERAL DENSITY AND RISK OF OSTEOPOROTIC FRACTURES

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Objectives: To assess severity of atherosclerotic lesions of carotid arteries (CA) in men with coronary heart disease (CHD) depending on bone mineral density (BMD) and risk of osteoporotic fractures according to FRAX scale.

Methods: The study involved 102 men aged 51–75 years (median age of 61⁵⁵; 65 with CHD, verified by coronary angiography method. All patients underwent dual energy X-ray absorptiometry of lumbar vertebral bodies L1-LIV and femoral neck and colour duplex scanning of extracranial arteries. Assessment of severity of carotid atherosclerosis was carried out by presence of atherosclerotic plaques (ASP) and stenosis of CA, thickness of intima-media (TIM) CA. Threshold TIM for men over age of 50 was considered 0.9 mm (recommendations of American Society of Echocardiography, 2008 Based on results of densitometry value of T-criterion (recommendations ISCD, 2007 men were divided into three groups: 33 patients with osteoporosis (OP, T-criterion ≤2.5), 48 patients with osteopenia (OPE, T-criterion of –1 to –2.5) and 21 men with normal BMD (NBMD, T-criterion ≥–1). On the basis of information on the presence of clinical risk factors of osteoporotic fractures and densitometry data at all included in the study patients FRAX calculator was used to quantify probability of major osteoporotic fractures and hip fracture in next 10 years.

Results: It was found that 86.3% of patients value TIM exceeds threshold value (0.9 mm). Thickening of intima-media complex was in men with OP in 88.0% of cases, with OPE – in 87.5%, with NBMD – in 81.0% without statistically significant differences (p>0.05). In a comparative analysis of atherosclerotic lesions CA found that men with OP significantly were more likely to have ASP in CA (75.8%) compared to patients with OPE (43.7%, p=0.010) and NBMD (38.1%, p=0.016). Stenosis of CA in all investigated men was discovered in 54 cases (53%). Comparative analysis showed that in patients with OP percentage of patients with stenosis of CA was 2 times more than men with NBMD (75.8% vs 38.1%, p=0.006) and was significantly higher than proportion of such patients in the group with OPE (44.0%, p=0.004). In all included the study patients 10 year absolute risk of major osteoporotic fracture by FRAX was equal to 9.88±7.22, risk of hip fracture – 3.97 ±6.27. There was inverse correlation of TIM with T-criterion (r=–0.21, p=0.035) and with BMD (r=–0.20, p=0.045) at level of hip and reliable direct correlation between TIM and risk of hip fracture by FRAX (r=0.21, p=0.035).

Conclusions: In men with CHD aged over 50 years low BMD (T-criterion is less than 2.5) is associated with more severe carotid atherosclerosis, and thickening of intima-media CA – with an increased risk of hip fracture.

Disclosure of Interest: None declared

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THU0503 COST ANALYSIS OF ANTI-OSTEOPOROTIC DRUGS IN REAL-WORLD CLINICAL PRACTICE

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Background: Nonadherence can reduce treatment effectiveness and can negatively affect healthcare costs and thus the treatments' cost-effectiveness. Adherence in the setting of osteoporosis has been shown to be just as problematic, if not worse, than that in other chronic diseases. Economic evaluations based on modelling are commonly used to compare alternative treatment strategies in osteoporosis, to support decision-makers and to inform treatment guidelines.

Objectives: The aim of this study is to analyse healthcare costs of osteoporosis and to build a economic model cost-effectiveness of pharmacological interventions based on real world data.

Methods: The data of the analysed subjects were drawn from the administrative databases of four Local Health Authorities in the Abruzzo Region. Patients 60 years of age or older were included if at least one prescription for any